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(For details see pp. 7-8)

The strong seasonality of the Oregon economy with peak activity in August or September makes it very difficult at this time to determine if the declines in activity this year in September compared to August are only seasonal or are indications of a slowing of the recovery. Several indicators, such as department store sales and lumber production and orders, show a stronger decline this year than last. As this is written in late October, steel production in the nation has declined for the third straight week and this, coupled with other signs of slower economic activity, has caused a recurrence of some "bearish" feeling. The opinion is, in some quarters, that the economy is only "catching its breath" before starting another expansionary climb.

- **Employment:** Total employment in September was higher than August and higher than a year ago but unemployment at 3.8 per cent was also higher than last year's 3.5 per cent figure for September. Largely because of seasonal declines in lumber and wood and food products, manufacturing employment was lower than August and below September 1960.

- **Index of man hours in manufacturing:** The peak of this index for 1961 was passed in the month of August. The decline in September was to 99.6 from 106.9 in the previous month. Last year the decline was from 103.5 to 98.5 in the same two months.

- **Lumber:** Declines in nearly every measure of activity were registered. Average weekly production, average weekly orders, and unfilled orders at the end of the month in September were below the same figures for August and below September 1960. Lumber inventory at the end of September was higher than August but below September one year ago.

- **Department store sales** in August 1961 were lower than August last year by 5 per cent in the state. Portland registered a decline of 7 per cent, Eugene of 1 per cent, and Salem dropped 4 per cent. These declines reflect a national situation which has been interpreted by some observers as showing a slowdown in economic recovery. The decline is especially noticeable in view of the cumulative change for the first 8 months of this year compared to last. The decline in August wiped out previous gains to bring the sales for the two periods essentially even.

- **Bank debits** in September were generally below August in every section of the state except for the central and southeastern sections and around Klamath Falls. They were down 7.3 per cent for the state as a whole with large declines up to 14.8 per cent registered in the western portions of the state. Comparison with September 1960 shows a general decline of 3.4 per cent this year over last, but this was caused in large part by a decline in the Portland area. Most other regions of the state showed an increase in September 1961 compared to September 1960.

Public versus Private Ownership of Utilities and Resource Development

FILE COPY
Bureau of Business and Economic Research

By ROY J. SAMPSON
Assistant Professor of Transportation, University of Oregon

The Pacific Northwest has been and continues to be the scene of a bitter struggle between advocates of private and of public power. This is not surprising, as the Columbia basin, which geographically is almost the same as the region commonly referred to as the Pacific Northwest, has the continent's greatest hydro-electric potential. More than sixty private and public power dams already are in existence in American and Canadian portions of the basin, several others are under construction, and more are authorized or proposed. Little more than one-half of the area's hydro-electric potential is realized as yet, however, and the importance of electrical power is further accentuated by the problems of a growing regional economy with a relative scarcity of other fuel sources. The prizes and opportunities are high. Policies relating to power interties, seasonal equalization of water flows, power prices and preference clauses, who shall build dams at what places, and like matters, are headline items.

The public-private utility battle is in part pragmatic, and in part based upon underlying philosophies of the relative roles of government and private enterprise in resource development. As such, it spreads beyond the bounds of the Pacific Northwest and the electrical utility field, of course. Without becoming involved in unresolvable philosophical or ideological issues, this article is designed to set forth the historic reasons for public ownership in the utility field, the legal basis for such ownership, its development and extent in several utility fields and by various levels of government, the principal nonideological arguments for and against it, and to draw some conclusions. It is hoped that this survey approach, by briefly summarizing what has been, what is, and what may be, will be useful to protagonists of both sides, as well as to the general public which ultimately has to decide the various issues.

Reasons for Public Ownership

Most public ownership of utilities in the United States has not been brought about by a socialist ideology or by a desire for public revenues. Expediency rather than philosophy has been back of most public operations. This has been especially true at the local level. Many communities have "socialized" their public utilities for the same reason that they have "socialized" their police and fire departments, schools, and highways.

Many small towns in the past have developed their own electric, street transportation, or water supplies because such developments would not have been profitable (at reasonable rates) for privately owned companies. Many of these operations have not been profitable for the municipalities either, but a governmental agency does not necessarily have to make profits in order to stay in business. Other city ownership has occurred because of financial breakdowns of private operations or because of real or imagined abuses or exploitation by private companies. Public ownership in such instances may be viewed by the public in general as the lesser of two evils.

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At the federal level, public ownership was brought about initially for a variety of reasons. National defense fathered the original Muscle Shoals dam which later formed a nucleus for the Tennessee Valley Authority. Defense also has been responsible for federal activity in the atomic energy field. In addition, the large river valley developmental projects may be attributed partly to attempts to stimulate employment and business activity during a period of severe economic depression and partly to the fact that costs and risks in such undertakings are so high that private companies could not, or would not, undertake such programs. A considerable amount of federal electrical utility ownership also has occurred as an incident to other governmental operations, such as irrigation and flood control projects.

It would not be correct to say that the philosophy of "public ownership for its own sake," or public ownership "due to the nature of the business," has had absolutely no part in actual public ownership. Even at the federal level, however, where ideology certainly has been of more importance, the influence of philosophical attitudes has been small when compared to the influence of more pragmatic arguments in support of public ownership.

Legal Basis for Public Ownership

Most public ownership controversy until the 1930's dealt with municipal ownership. In our system of government, municipalities derive their powers from the sovereign states, and state constitutions in general place few if any restrictions on public ownership. The courts have rather consistently supported whatever actions state legislatures have taken in the direction of public ownership.

It is a well-established principle of law that public funds may be used only for public purposes (*Loan Association v. Topeka*, 87 U.S. 655, 1873; *Fallbrook Irrigation District v. Bradley*, 164 U.S. 112, 1896). The legal question involved in dispensing tax funds for publicly owned utilities, then, has revolved around a determination of what may be considered as a public purpose.

An 1892 Supreme Court decision upheld a municipality's right to establish its own gas utility notwithstanding the protest of a privately owned firm which had been supplying the city's gas needs for many years (*Hamilton Gas Co. v. Hamilton City*, 146 U.S. 258). In 1903, a similar set of circumstances brought a similar ruling in an electric case (*City of Joplin v. Southwest Missouri Light Co.*, 191 U.S. 150), and the following year saw a similar decision in a water utility case (*Helena Water Works Co. v. Helena*, 195 U.S. 383). Later decisions upheld the right of a city to maintain and operate a public fuel yard (*Jones v. City of Portland*, 245 U.S. 217, 1917), a state's right to establish an Industrial Commission empowered to engage in utility, milling, manufacturing, warehousing, and related fields (*Green v. Frazier*, 253 U.S. 233, 1920), and a city's right, under state law, to own and operate gasoline service stations (*Standard Oil Co. v. City of Lincoln*, 275 U.S. 504, 1927). In 1934, the Court held that a city-owned utility, even though it was competing with a privately-owned utility which paid gross revenue taxes to the city, was not even required to conduct its business at a profit (*Puget Sound Power and Light Co. v. Seattle*, 291 U.S. 619).

Federal ownership is no more hampered by constitutional restrictions than is state and municipal ownership. Private attacks on Federal utility ownership were repulsed in two leading cases against the Tennessee Valley Authority (*Ashwander v. TVA*, 297 U.S. 288, 1936; *TEPCO v. TVA*, 306 U.S. 118, 1939). Even the "sovereign" states cannot prevent Federal utility construction and ownership within their own territories (*Oklahoma v. Atkinson Co.*, 313 U.S. 508, 1941).

As a generalization, then, it appears that public ownership of utilities is limited only by public opinion as expressed through legislation, and *not* by constitutions or courts.

Development and Extent of Public Ownership

Contrary to European custom, there has been but little public demand for and little activity toward public ownership of telephone, telegraph, radio, or television facilities in the United States. Almost the only exceptions are local rural telephone systems owned through cooperative associations, a meager handful of municipally owned telephone plants, and radio or television stations connected with educational institutions.

Public ownership of water facilities, on the other hand, has a long history. Several municipal water systems date back to the Revolutionary War era, or earlier. Today, more than three-fourths of our cities of more than 5,000 population, including almost all major cities, operate municipal water facilities, and about one-half of all United States cities operate their own sewage treatment plants. Private enterprise has been as reluctant to enter the water business as public enterprise has been to enter the communications field, and very little private versus public controversy exists in either of these areas.

In earlier days, when gas was of importance for lighting, many municipalities constructed their own plants. With the coming of electric lighting, however, and with changing technology (and the increasing importance of natural gas) in the gas industry, most municipal gas operations were disposed of, and the field now is dominated by private concerns with little ownership controversy.

The ownership of street transportation facilities is fairly well mixed. About one half of the dozen largest United States cities own their transport systems. Some municipal street transport ownership dates back into the 1800's, but much more has been brought about because of the inability of private firms to maintain operations. The coming of the automobile, the five-day work week and longer vacations, television, and fringe area shopping centers with parking facilities, has decreased street transportation patronage. Fewer riders have brought higher per customer costs, higher rates, poorer service, and consequently still fewer riders. As a result, many cities have been forced into the street transportation business against their wishes, and in other cities private operations are continued only

through subsidies of various types. City operated street transportation systems in general have not been successful from a revenue-cost viewpoint. Some city operations manage to show a small profit or to break even, but many are supported in part by public funds.

The electric utility industry has been, and still is, in the center of the public versus private ownership controversy. From the industry's beginnings in the late 1800's up until the 1920's there was a definite trend toward public (that is, muncipal) ownership. In many instances, municipal ownership came about because private electrical services were not available except at very high prices, or even at any price. During the 1920's, partly because of more integration in the private sector of the industry, and partly, perhaps, because of aggressive public relations and propaganda campaigns by privately owned utilities, the trend toward public ownership was reversed.

During and since the 1930's, however, the trend has again turned in favor of public ownership of electrical utilities. Several factors have contributed to this. The development of diesel engines has made small-scale municipal generating operations more efficient than formerly. During the 1930's, there was a strong public reaction against alleged "abuses" by private utility companies, as revealed by various holding company crashes and Congressional investigations. Low-priced federal power, combined with "preference clauses" favoring public purchasers, has greatly stimulated public ownership in some areas. Rural Electrification Administration loans to cooperative associations and other public bodies also have been of considerable importance to the public ownership movement.

Today, more than one-fifth of all United States cities of more than 5,000 population are selling electricity. Less than one-half of these cities, however, produce their own power. Despite the inroads of public ownership, though, private firms still produce almost four-fifths of all electric power in this country. Of the publicly produced portion, about two-thirds comes from federal projects, almost one-fourth from municipal plants, and the remainder from various state projects, power districts, and cooperatives.

The federal government has been in the electric power business for a half-century. Until the 1930's, however, federal power activity was incidental to other operations, carried out principally for conservation or reclamation purposes, and was not highly controversial. It was the Tennessee Valley Authority, a government corporation, with its broad program of regional development, its substantial cost allocation to flood control and navigation, and its "yardstick" rate concept, that aroused private electrical utilities to the dangers of federal encroachment. Subsequent important federal hydro-power activity has included the Columbia River valley development program (with the Bonneville Power Administration marketing power produced at the several dams in the area), the California Central Valley project, the Southwestern Power Administration and the Southeastern Power Administration (both marketing agencies for several regional dams), and the St. Lawrence Seaway development (this power, however, is not federally marketed). In addition, several lesser projects have been undertaken or proposed.

More recently, the atomic energy program has caused a battle between public and private power groups. Public power advocates maintain that the entire atomic development program has been at public expense, and that its benefits should not be "given" to private concerns. The Atomic Energy Act of 1954 was a private power victory, although it involved some compromise. Under this act, both private firms and public agencies may engage in atomic energy production under Atomic Energy Commission license and regulation, while the AEC itself cannot engage in commercial power operations except sales from experimental plants. Few observers, however, believe that the last word has been spoken in this controversy.

Federal power policy under the Roosevelt and Truman administrations envisioned the federal government in the power business on a large scale. Power prices were not established for profits but for maximum consumption and regional development. Power sales were pushed by installing high capacity and charging low rates with the expectation that demand would grow to the potential supply. Transmission lines and supplemental stream plants were acquired or built, and "preference clauses" and other aids were given publicly-owned systems.

The Eisenhower administration followed entirely differ-

EDITOR'S NOTE: The following is from an address, *The Arts, the Sciences, and Undergraduate Business Education*, by Maurice W. Lee, Dean, School of Business Administration at University of North Carolina, and President of the American Association of Collegiate Schools of Business.

... Now what has all this to do with the place of the business school in the total academic scene? I have mentioned these rather obvious matters because it seems to me, as I travel around the country, that business school students and business school faculty members tend to be somewhat defensive about the fact that they are engaged in a process of education designed to develop students with a special capacity for making a living in their post-college life. But this is precisely what most of the rest of the university is also doing. The chemistry and physics majors are not concentrating in the areas they are in because they have no intention of using that training after graduation. The foreign language student may be bent on a career as a teacher or in foreign service. The English major may be planning to enter teaching or to make a living as a professional writer.

With the junior and senior years generally given over to specialized pre-professional training, a heavy burden falls upon the general college—the freshman and sophomore years. Here the student must be forced to spread his work widely to cover, in an introductory way, the range of human knowledge; and in the process he must also acquire the basic language and quantitative tools. In some wonderfully trusting way, we of the faculty and administration seem to believe that out of all this will emerge a well-rounded student. If he is well-rounded, he will be about the only thing that is. For he is too often the only link there is between departments. And the faculty he has had is much more apt to have been a stream of narrow specialists than well-rounded men. No university, to the best of my knowledge, has solved this problem, though some are trying harder than others ...

ent policies. Private utilities received both sympathy and tangible benefits. Funds for new federal construction and expansion were restricted in some instances (giving rise to the now famous "Dixon-Yates" and "Hells Canyon" controversies), and a "partnership plan," contemplating joint federal, state, and private activity, was formulated. From the viewpoint of privately-owned utilities, however, the Eisenhower period. at best, may be considered only as a delaying action and not as a reversal of earlier federal trends. Press releases in the early days of the Kennedy administration point toward a return to the policies of the Roosevelt-Truman era.

State governments have been interested in transportation utilities almost since the beginning of our country. New York constructed the Erie Canal during the 1820's, and its commercial success sparked a rash of similar projects. Early railroads received substantial state aid, as do present-day highways. Port districts and other utility-like agencies have been sponsored by states for many years. It is not surprising, then, that several state governments eventually invaded the electric utility field.

South Carolina in 1934 organized a Public Service Authority to do on a small scale in that state what the TVA does in the Tennessee Valley. Even earlier, North Dakota's Industrial Commission had been authorized to enter the utility business (see the reference to *Green v. Frazier*, above), and the New York State Power Authority had been created (in 1931) primarily to handle St. Lawrance power (actual construction of the St. Lawrence project did not start until 1954). In 1939, Nebraska organized a Consumer Public Power District, and by 1946 all electric power in that traditionally "conservative" state was publicly owned. Texas and Oklahoma have built dams and sold power for a number of years, and various other states have dabbled more or less directly with public ownership, principally through the authorization of public utility districts or similar organizations covering several localities. Compared to federal and municipal ownership, however, state ownership of utility facilities is not of great quantitative importance.

Traditional Nonideological Arguments For and Against Public Ownership

Public ownership supporters maintain that this permits lower prices to consumers because of smaller rate bases, lower executive salaries and financing costs, less advertising and duplication waste, and no costs for regulation or profits. Also, it is sometimes maintained that public ownership creates better labor-management relations and provides a "yardstick" by which "reasonable" private utility rates may be measured.

Advocates of private ownership counter these arguments by holding that public management may be inferior, that low financing costs may lead to uneconomic over-expansion, that advertising promotes better utilization of facilities, that dissatisfied consumers have less recourse against publicly-owned than against privately-owned systems, that labor relations are not necessarily improved by public ownership, and that the alleged "yardstick" is unrealistic because public systems do not pay taxes or may even be subsidized by taxation. Further, private ownership supporters point out the possibility of decisions based on political rather than on economic factors.

An efficient utility operation, whether public or private, requires avoidance of politics, an operating unit of sufficient size to get economies of scale, a high demand for the product, and good management. In terms of comparative efficiency, which should be the economic (nonideological) criterion for judging the private versus public argument, statistics supporting *both* groups can be found. Often, however, small (high-cost) city operations are compared with large (low-cost) private operations. As most city operations are small-scale, this would tend to support private ownership. If operations of approximately the same size are compared, though, apparently not to much cost difference is found. Generally, cities have higher generation and transmission costs, while private firms have higher sales, collection, and administration costs.

Nonbiased opinion might hold that inefficiency often can be covered up both in public and in private operations. There is no evidence that private industry has a monopoly of honesty, integrity, and ability any more than that government has a monopoly of bureaucracy. The record of public management compares favorably (at least) with that of private management. Without fence-straddling, and from strictly an economic viewpoint, it appears probable that private ownership is more efficient and thus more desirable in some situations and public ownership in others. Each case must be considered individually on its own merits.

Conclusions

Regardless of which political party is in power, it does not seem likely that any significant absolute decrease in public ownership of utilities may be expected in the immediate future. Political factors may influence to some extent the relative shares of future *new* markets going to public and to private organizations, however. The best policy for private utilities who wish to maintain their present share of already existing markets and to strive for an increasing share of new markets is to reorganize and push their public relations programs.

To most effectively meet the threat of public ownership, private utilities would be well advised to adopt a positive rather than a negative public relations viewpoint. That means the abandonment of the "anti-socialist" approach and increased emphasis on a "pro-efficiency" campaign. Most Americans, even those favoring public ownership of utilities, are not socialists, and most such persons probably resent being told that they either are socialists or are the unconscious dupes of socialists! Such claims are likely to destroy more good will than they create. Instead of irritating potential friends by unjustified name-calling and emotionalism, it appears that private utilities could more appropriately concentrate on trying to do a better job than their publicly-owned rivals (wherever this is possible), and further, in such cases, on *demonstrating* to the general public that they actually can do and are doing a better job. Ideological arguments have not been of any great concern to the general public in the public versus private ownership controversy.

EDITOR'S NOTE: The *Review* attempts to keep its mailing list current. We greatly appreciate communications from our subscribers informing us of changes in address. Policy of the *Review*, in mailing to business and professional offices, is to direct the paper to the position rather than to the individual holding that position. But when requests to receive the *Review* are personal the address is, of course, directed in the name of the person requesting it.

Letter to the Editor

In a recent article, "The New School of Business Administration," (*Oregon Business Review*, Vol. XX, No. 8, Aug. 1961) Dean Richard W. Lindholm has given arguments in support of a modern and significant trend toward self-containment and specialization in schools of business administration. He said,

> The development of the necessary departmental specialization in the social and behavioral sciences has been eliminating the opportunity for a university student to earn the traditional liberal bachelor of arts degree.

In support of his thesis he cites an alleged parallel tendency toward specialization in natural science curricula in the general liberal arts program:

> The American university has been an institution of higher education built on a general liberal arts program with attached professional and graduate programs. A number of years ago this picture began to disintegrate in the areas of the natural sciences. Each of the various fields of science accumulated so much specialized information that an undergraduate major in science graduated, not as a generalist, but as a budding specialist in inorganic chemistry or atomic spectra.

This is a misstatement of fact. A glance at the standard curriculum for majors in chemistry as set forth in the University of Oregon catalog, 1961-62, will show that a maximum of five quarters of inorganic chemistry are available to an undergraduate at this university. Two of these are required in the freshman year. The others are electives. Four other year sequences in chemistry are required: one in general chemistry at the freshman level, one in organic chemistry for sophomores, one in quantitative analysis at the junior level, and one in physical chemistry for seniors. A student completing this curriculum cannot in any sense whatever be regarded as a "budding inorganic chemist;" nor as a budding organic chemist; nor as a budding physical chemist. The material presented in the course in inorganic chemistry is a part of the general background of any person who has a basic knowledge of the field of chemistry. To go further, the course in organic chemistry is required in the curriculum leading to the bachelor of arts degree in biology and in the premedical curriculum. The premedical student, having finished this course, is no more a specialist in organic chemistry than, having finished his course in comparative anatomy, he is a surgeon. Again, the student whose major is physics can receive, at the very most, six term hours in atomic spectra, partly in the course in modern physics and partly in the one-term course in spectrochemical analysis. The course labeled Atomic Spectra in the general catalog is a graduate course not open to undergraduates. At the time of his graduation from the College of Liberal Arts, the "budding specialist in atomic spectra" must look forward to at least three years of intensive study, at the end of which, perhaps, the bud will begin to open. The programs in chemistry and physics in the University of Oregon are in every way typical of those offered at universities throughout the country. We do not produce specialists. We do produce students with a background of general knowledge upon which they may build a specialty if they wish. In very many cases, students defer their choice of special field to a time considerably later than the date of their graduation in order that knowledge and experience gained in post-graduate study may be brought to bear on this important decision.

Dean Lindholm goes on to say,

> One effect of the rapid development of the sciences has been to make each department in this area a professional school with its own specialization. A considerable portion of this specialization was continued into the graduate school, and the standard for a trained scientist became five years of specialized study and the doctorate. The doctor in chemistry was expected to carry forward chemical operations in industry or government. He became a member of the professional team; he was not expected to be a genius nor an "odd ball." On the other hand, he was expected to be a competent worker in one or more of the specializations of science.

Assuming that the writer has reference to undergraduate science programs in colleges of liberal arts, he is wrong. The undergraduate science major does not have "professional" training. His work in his major field is preparatory. Not at all infrequently the undergraduate in physics will continue post-graduate work in the field of mathematics, or the student with a bachelor's degree in chemistry will go on to acquire professional training in biology.

To say that specialization in departments of science was "continued into the graduate school" is to reverse the order of events. On the contrary, specialization is confined to the graduate school, and only on occasion, because of special interests of staff members or to satisfy the curiosity of students, may extend into the senior year of the undergraduate program. This is rare, usually occurs only temporarily, and is invariably presented to the student on an elective basis.

It has been a very long time indeed since the standard for a trained scientist was five years of specialized study and the doctorate. Occasionally, an exceptional student is able to complete the requirements for the master's degree after one year of post-graduate study. The standard is two years. The doctorate is rarely attained in less than four years of post-graduate work. The doctor in chemistry who is "expected to carry forward chemical operations in industry or government" is more likely to be a doctor of chemical engineering than the product of a graduate program in chemistry in a college of liberal arts. A primary and virtually universal requirement for the doctorate in a college of liberal arts is that the candidate "shall have made an original contribution to knowledge." What is truly expected of the doctor in chemistry is a demonstrated ability to contribute to man's understanding of the natural world. If he is to have that ability, he must be an educated man, not a narrow specialist without knowledge of the intellectual world. The scientific community has a deep concern lest its educational program be forced by the inherently vertical structure of scentific knowledge into too narrow specialization, particularly at the college level. In consideration of curricular matters, the typical attitude of the scientist is to wish to modernize and improve instruction, but not to expand programs and thus encroach upon time that should be devoted to liberal education in the arts and humanities. He is uncomfortably aware that he has lost ground in this struggle, and sees as the likely result professional scientists who are less able to contribute to knowledge.

Surely, not even Dean Lindholm can believe that the undergraduate science major is, or ever was, "expected to be a genius or an 'odd ball.' " What is expected is intellec-

History of the Bonanza Mine

Oregon's largest and most productive quicksilver mine, the Bonanza, situated about 7 miles east of Sutherlin in Douglas County, was closed in October 1960. During the current year mining and reduction equipment has been dismantled and the property offered for sale. The mine had been in almost continuous operation since 1937 and had produced more than 39,000 flasks to account for about 38 per cent of Oregon's total quicksilver production. Although the eventual depletion of minable reserves of any quicksilver mine must be considered inevitable, closure of the Bonanza mine was like the passing of an old friend to the mining people of the West.

The history of the Bonanza mine dates back to the early days of mining in Oregon. Cinnabar is said to have been discovered there some time during the 1860's. Some of the early development was done by the Bonanza Quicksilver Co., which was organized in 1878. This company reportedly installed the Scott furnace, parts of which are still on the property. Following these activities, the property passed through the hands of several individuals, none of whom succeeded in putting the mine on a paying basis.

Most of the early operations were confined to float and surface ore mined from a glory hole in the outcrop of the main ore body and from several short adits all less than 250 feet long. In 1935 the mine was acquired by H. C. Wilmot, who organized Bonanza Mines, Inc. (renamed Bonanza Oil & Mines Corp. in 1951), and development of a small ore body that lay several hundred feet to the south was started. A 5-deck Herreshoff furnace of 50-tons-per-day capacity was installed and in late 1937 production began.

Continued underground exploration led to the discovery of "good" ore in the north hill in 1939 just as the south ore body was playing out. As a result, two 100-ton-per-day Gould rotary furnaces were added to the treatment plant. Discovery and development of the rich ore body had come at a period when war time demands were forcing quicksilver prices to record highs, and for the year 1940 the Bonanza mine ranked second among the quicksilver producers in the United States with a production of 5,733 flasks. The Bonanza mine was the only major quicksilver mine in Oregon to continue operations through the war years.

The ore bodies at the Bonanza mine occurred as irregular lenses scattered along a shear zone in Eocene sandstone beneath a layer of relatively impervious shale. The shear zone, having an average dip of about 45°, approximately parallels the bedding in the sandstone, but in some places transects it, particularly at points where flexures in the latter occur. Localization of the mineralizing solutions within the shear zone is thought to have been aided considerably by the imperviousness of the overlying shale. For much of its length the shear zone was found to be thin and indistinct but unpredictably it widened to form lens-shaped zones which contained the ore bodies.

Where first encountered on the 370 or main haulage level, the principal ore body of the mine proved to be about 600 feet long and as much as 60 feet thick. Because of a gradual tapering of the ore body to a width of about 4 feet and a length of 150 feet on the 700 foot level, it was feared in 1944 that mining below the 700 foot level would prove unprofitable. Fortunately nodal extensions and subsidiary lenses of good ore were encountered along the shear zone materially lengthening the life of the mine. Ore has been mined from the surface to an inclined depth of about 1450 feet. Economical recovery of ore from the 1450 foot level, the last to be developed, proved impossible.

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tual competence and diligent study. The gifted intellect and the nonconformist with a fresh idea are the objects of our diligent search. They are rareties which, far from being expected, are the educator's most cherished prizes. When these shall have been displaced by the "competent worker in one or more specializations" then shall science in the college of liberal arts have failed its purpose.

Again I quote,

> This new dimension in undergraduate and graduate work in science has not had forthright recognition in university programs and administration designations.

Not so. Undergraduate and graduate programs in science in colleges of liberal arts in American universities have been the prime source of the very knowledge which constitutes the real 'new dimension' in science. Undergraduate and graduate programs are constantly under scrutiny by the staffs of science departments and are revised and brought up-to-date almost term-by-term. Members of science faculties, who are the real scientific specialists in colleges of liberal arts, have repeatedly urged the importance of preventing expansion of science major curricula to the detriment of the intellectual welfare of the liberal arts student. In this they have had the full support of those responsible for university programs. Science curricula have been designed to take the fullest possible advantage of the resources of the whole liberal arts institution. The undergraduate major in physics studies chemistry in the Department of Chemistry, mathematics in the Department of Mathematics; he is required to complete the program in the humanities which is required of all liberal arts students. He is urged to study at least one foreign language. Much more often than not, his program includes elective courses in history, economics, or philosophy. A better educational program for the potential scientist has not yet been conceived. It has been established beyond all doubt that the best of our potential scientists are liberal arts graduates with the broadest possible background.

American scientific education has attained its new dimension under the administration of liberal arts colleges. Whatever 'designations' this administration may have evolved, its basic structure has been friendly to science and has forthrightly recognized it as a constantly changing, exciting, primary component of man's intellectual activity.

Almost all of modern American science has its roots in our colleges of liberal arts. There is universal agreement among scientists on this point; it is supported by overwhelming evidence. Far from desiring radical change in the direction of narrow specialization, scientists are fearful lest a tendency in that direction deprive them of the advantages which they have enjoyed. To cite them as pioneers in the segmentation of the liberal arts is to do them a disservice which they have not deserved. (signed)

J. L. Powell, Head, Department of Physics, University of Oregon

Construction. The Bureau of Business Research, in cooperation with the F. W. Dodge Corporation, reports that August 1961 construction contracts in Oregon had a total value of $33,865,000. This is an increase of 2 per cent over the total for August 1960. Comparative data, in thousands of dollars, follow:

	Aug. 1961	*July 1961*	*Aug. 1960*
Nonresidential	$ 7,683	$ 6,825	$ 7,305
Dwelling units	16,212	14,766	20,591
Public works and utilities	9,970	7,018	5,432
Totals	$33,865	$28,609	$33,328

Nonresidential construction in Oregon in August 1961 totaled 632,000 square feet; for the same month one year earlier, construction totaled 580,000 square feet.

In August 1961 there were contracts for 1,091 dwelling units, totaling 1,496,000 square feet. For the same month one year earlier there were 1,062 units, totaling 1,868,000 square feet.

The cumulative total for the first eight months of 1961 shows the value of building contracts in Oregon to be 5 per cent lower than for the comparable period in 1960.

For the 11 western states the cumulative eight month value remains 6 per cent higher than for the comparable period in 1960. For the nation, the cumulative value for the first eight months of 1961 was 5 per cent higher than for the same period in 1960. None of the preceding figures include public works or utilities.

Employment. Information on employment in Oregon is reported each month by the State Department of Employment in Salem. The latest figures follow, exclusive of agricultural employment.

	Sept. 1961	*Aug. 1961*	*Sept. 1960*
Lumber and wood products	74,300	75,800	75,300
Food and kindred products	29,400	32,200	28,400
Other manufacturing	51,700	51,800	52,700
Total manufacturing	155,400	159,800	156,400
Contract construction	25,700	23,300	29,800
Wholesale and retail trade	117,100	115,800	118,500
Government	100,700	96,700	95,800
Other nonmanufacturing	135,800	135,000	205,500
Total nonmanufacturing	379,300	370,800	449,600
Total wage and salary employment	534,700	530,600	532,900
Per cent of unemployment	3.8	4.3	3.5

Index of man hours in manufacturing. A reliable index of change in manufacturing activity is the man hours of industrial production workers. The index is computed by the Bureau of Business Research from data supplied by the Oregon State Department of Employment (1951=100). Figures apply only to personnel engaged in direct manufacturing; sales, office, and general administrative employees are excluded. No adjustment for seasonal variation has been made. The most recent reading for Oregon is for September 1961.

	1961	*1960*
Jan.	74.1	82.9
Feb.	71.4	84.3
Mar.	74.8	85.3
Apr.	81.5	87.9
May	84.4	89.4
June	93.1	94.6
July	93.0	94.1
Aug.	106.9	103.5
Sept.	99.6	98.5

Average weekly earnings of production workers in manufacturing industries in Oregon provide timely information on current trends of labor costs as well as rough measures of average income available for purchasing goods and services. Both aspects of this information make the figures valuable for consolidation with other data in evaluating the current business situation. Data below are supplied by the Oregon State Department of Employment.

	1961	*1960*
Jan.	$ 97.79	$95.72
Feb.	95.52	96.78
Mar.	97.96	96.47
Apr.	101.83	98.57
May	101.69	98.79
June	101.16	96.70
July	102.56	98.02
Aug.	102.77	97.93
Sept.	102.18	97.57

Lumber. These figures were reported by the West Coast Lumbermen's Association. They cover the Douglas fir area of the Pacific Northwest and are in thousands of feet, board measure.

	Sept. 1961	*Aug. 1961*	*Sept. 1960*
Average weekly production	151,819	154,526	160,497
Average weekly orders	138,786	147,400	149,659
Unfilled orders, end of month	424,013	466,495	439,571
Lumber inventory, end of month	1,107,979	1,095,724	1,129,536

Banking. Loans, investments, and deposits of Oregon banks that belong to the Federal Reserve System are reported by the Federal Reserve Bank of San Francisco each month. The figures below are in millions of dollars and are for the month ending as of the date shown.

	30 Aug. 1961	*26 July 1961*	*31 Aug. 1960*
Loans	$ 938	$ 916	$ 973
Investments	705	716	598
Deposits	1,797	1,784	1,712

Portland food prices advanced in August 1961 to a new all-time high for the third consecutive month. Bureau of Labor Statistics report the latest increase of 0.2 per cent brought average food prices to a level of 2.7 per cent above that of a year ago, and 23.7 per cent above the 1947-49 base. Prices have advanced in ten of the last 12 months; increases have generally been small.

Cash receipts from farm marketing. The cumulative receipts from the sale of farm crops and livestock and products in Oregon were $20,169,622 for the first eight months of 1961. This is an increase of 3 per cent over the 1960 cumlative total for the comparable period of time. The following table contains the monthly data in thousands of dollars, as reported by the Economic Research Service of the U. S. Dept. of Agriculture:

	1961	*1960*
Jan.	$27,732	$31,160
Feb.	20,152	22,381
Mar.	20,085	24,294
Apr.	17,851	20,784
May	17,639	18,353
June	30,398	31,368
July	38,514	37,503
Aug.	51,860	54,175

Department store sales. Figures on department store sales are compiled by the Federal Reserve Bank of San Francisco for Oregon, the Potrland and Eugene areas, and Salem. The data are released for Portland each week and once a month for all three cities and the state as whole.

The most recent Portland area data are for the week ending October 7, 1961, when sales were 6 per cent below those of the corresponding week in 1960.

Sales for the month of August and for the first eight months of 1961 have been compared with those for the corresponding periods one year earlier. Percentage changes are shown in the following table:

	Aug. 1961	*Jan. 1 to Aug. 31, 1961*
Oregon	−5	0
Portland area	−7	0
Eugene area	−1	+1
Salem	−4	−1

Life insurance sales. The Life Insurance Agency Management Association reports that for August 1961 sales of ordinary life insurance in Oregon totaled $41,850,000, an increase of 4 per cent over sales for the same month one year ago.

Cumulative Oregon sales for the first eight months of 1961 are down 2 per cent from totals for the same period one year ago. At that time, total sales for 1960 were up 4 per cent over 1959.

Electric energy. The Public Utility Commissioner of Oregon reports that 739,715 total kilowatt hours of electricity were sold during August by privately owned electric utilities in Oregon, an increase of 3.2 per cent over sales for one year earlier. For the twelve month period ending 31 August 1961 sales had increased 2.6 per cent over the comparable period one year earlier.

Advertising linage. The Oregon Newspaper Publishers Association reports that for the month of September 1961 there were 588,815 total column inches of local retail advertising in 20 daily Oregon newspapers. This is a decrease of 11 per cent from the total of 665,658 inches in September 1960.

OREGON STATISTICAL REVIEW

BANK DEBITS

Bank debits represent the dollar value of checks drawn against the deposit accounts of individuals and business firms. Bank debits are considered good indicators of current activity. But their value for this purpose can be impaired if they include large checks used to transfer funds for the purchase of certain kinds of capital assets that are not "business activity". There are more banks now reporting than were one year ago and the statistics are more complete; but for that reason 1961 data may not be strictly comparable with 1960 data. This month the Bureau of Business Research collected data on bank debits from 230 banks and branch banks.

	Number of banks reporting	Debits Sept. 1961	Debits Aug. 1961	Debits Sept. 1960	Percentage change Sept. 1961 compared with Aug. '61	Percentage change Sept. 1961 compared with Sept. '60
Oregon	230	$2,054,075,738	$2,215,401,357	$2,126,363,186	— 7.3	— 3.4
Portland area (Clackamas, Columbia, Multnomah, Washington counties)	79	1,246,299,541	1,338,524,766	1,341,630,942	— 7.2	— 7.1
Mid-Willamette Valley (Benton, Linn, Marion, Polk, Yamhill counties)	43	249,019,129	292,186,283	248,402,806	—14.8	+ 0.2
North Oregon Coast (Clatsop, Lincoln, Tillamook counties)	12	39,539,050	43,001,269	40,178,752	— 8.1	— 1.6
West Central Oregon (Coos, Douglas, Lane counties)	31	218,520,341	235,068,895	213,389,295	— 7.1	+ 2.4
Southwestern Oregon (Curry, Jackson, Josephine counties)	15	98,552,845	107,197,866	95,307,424	— 8.5	+ 3.4
Upper Columbia River (Gilliam, Hood River, Sherman, Wasco, Wheeler counties)	10	29,582,709	30,914,749	31,634,183	— 4.4	— 6.5
Pendleton area (Morrow, Umatilla counties)	11	39,015,698	41,153,779	35,694,129	— 5.2	+ 9.3
Central Oregon (Crook, Deschutes, Jefferson counties)	6	32,989,850	32,775,906	30,939,159	+ 0.6	+ 6.6
Klamath Falls area (Klamath, Lake counties)	8	40,649,139	36,924,268	35,116,387	+10.0	+15.7
Baker, LaGrande area (Baker, Grant, Union, Wallowa counties)	10	28,984,416	30,835,430	27,351,346	— 6.1	+ 5.9
Southeastern Oregon area (Harney, Malheur counties)	5	30,923,020	26,818,146	26,718,763	+15.3	+15.7

BUILDING PERMITS

Building permits are a report of plans rather than of construction in actual operation. Interpretation of these data must allow for time elapsed between the issuing of the permit and the beginning of construction. The information has been collected by the Bureau of Business Research from building departments in local government.

	New dwelling units Sept. 1961	Additions New non-residential Sept. 1961	Additions Alterations & Repairs Sept. 1961	Totals Sept. 1961	Totals Aug. 1961	Totals Sept. 1960
Albany	$ 12,700	$ 190,588	$ 11,928	$ 215,216	$ 142,157	$ 246,796
Baker	27,000	203,884	9,925	240,809	26,615	108,565
Beaverton	55,400	101,570	41,981	198,951	123,945	190,501
Bend	84,400	9,000	3,340	96,740	174,330	101,400
Coos Bay	——	233,625	243,510	477,135	431,565	156,617
Corvallis	119,000	21,000	7,464	147,464	210,718	645,058
Eugene	993,452	56,275	68,560	1,118,287	2,225,487	638,255
Grants Pass	25,500	650	102,250	128,400	70,870	145,300
Hillsboro	133,000	4,385	23,149	160,534	298,010	131,912
Klamath Falls	62,500	293,300	97,577	453,377	37,170	46,700
La Grande	60,678	5,352	14,725	80,755	123,200	59,414
McMinnville	92,000	15,750	1,700	109,450	104,330	34,678
Medford	126,500	44,887	41,562	212,949	861,250	354,070
Milwaukie	125,950	——	——	125,950	248,220	297,600
North Bend	30,000	1,145	28,185	59,330	73,654	68,520
Pendleton	13,000	23,700	11,190	47,890	71,485	97,372
Portland	1,512,125	596,980	1,823,760	3,932,865	5,249,800	5,082,895
Roseburg	44,276	——	31,866	76,142	64,576	219,425
Salem	421,905	295,450	35,951	753,306	638,014	267,734
Springfield	138,416	36,670	51,794	226,880	180,821	311,681
The Dalles	63,000	12,000	54,375	129,375	79,548	71,450
Clackamas County	615,295	19,955	26,965	662,215	643,950	1,639,325
Douglas County	439,900	217,250	6,500	663,650	88,946	147,352
Lane County	714,165	204,247	83,640	1,002,052	1,800,862	1,093,519
Marion County	587,100	252,950	69,433	909,483	553,455	745,880
Multnomah County	2,186,201	728,654	267,451	3,182,306	3,061,695	2,090,531
Washington County	1,450,515	100,255	68,797	1,619,567	2,055,919	1,883,621
120 other communities	1,544,443	1,630,779	685,290	3,860,512	3,791,539	2,356,576
Totals	$11,678,421	$5,300,301	$3,912,868	$20,891,590	$23,432,131	$19,232,747

RESIDENTIAL BUILDING PERMITS FOR OREGON

	Sept. 1961 New dwellings No. of units	Sept. 1961 New dwellings Value	Aug. 1961 New dwellings No. of units	Aug. 1961 New dwellings Value	Sept. 1960 New dwellings No. of units	Sept. 1960 New dwellings Value
Albany	1	$ 12,700	13	$ 125,500	5	$ 61,000
Baker	2	27,000	0	——	1	10,000
Beaverton	3	55,400	5	86,000	12	171,690
Bend	7	84,400	1	10,000	3	38,300
Coos Bay	0	——	10	87,500	4	54,000
Corvallis	13	119,000	14	158,000	10	108,000
Eugene	126	993,452	77	665,840	79	575,300
Grants Pass	2	25,500	6	50,500	4	34,750
Hillsboro	13	133,000	8	89,495	9	111,000
Klamath Falls	4	62,500	1	13,500	2	21,000
La Grande	5	60,678	6	81,500	3	52,870
McMinnville	7	92,000	5	63,000	1	25,000
Medford	10	126,500	43	447,150	14	146,500
Milwaukie	10	125,950	10	142,620	22	297,600
North Bend	4	30,000	7	52,880	0	——
Pendleton	1	13,000	2	22,000	5	81,000
Portland	60	1,512,125	90	2,217,445	157	1,979,210
Roseburg	4	44,276	5	62,432	6	73,658
Salem	56	421,905	54	366,300	21	228,700
Springfield	16	138,416	12	87,548	7	55,432
The Dalles	7	63,000	3	50,000	3	60,000
Clackamas County	48	615,295	43	564,000	50	612,675
Douglas County	51	439,900	5	43,960	13	135,396
Lane County	76	714,165	127	1,107,431	84	894,703
Marion County	51	587,100	47	520,950	49	541,200
Multnomah County	147	2,186,201	171	2,350,543	119	1,760,997
Washington County	86	1,450,515	116	1,858,930	90	1,353,697
120 other reporting centers	135	1,544,443	237	1,889,589	103	1,198,959
Totals	945	$11,678,421	1,118	$13,214,613	876	$10,682,637

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